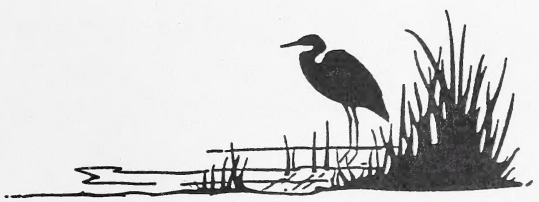
Interim
Forest Management Planning Manual

Guidelines to Plan Development

Version: April, 1998

Land and Forest Service
Alberta Environmental Protection



Rules are for the obedient

But guidelines for the wise

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1.0 INTRODUCTION

Forest management unit plans are required for every *Forest Management Unit* (F.M.U.) established by the Minister under Section 14(1) and (2) of the *Forests Act*. This planning authority extends to provincial crown land and does not pertain to federal or private land. *Forest Management Agreement* (F.M.A.) holders assume this responsibility from the government and prepare Detailed Forest Management Plans (D.F.M.P.). The transfer of responsibility occurs through the negotiation of an agreement which is approved by *Order in Council*. Section 10 of all Forest Management Agreements outlines the specific planning requirements.

Traditionally, forest management planning has emphasized sustained yield timber management as required under the Forests Act. It has also been government policy to recognize other resource values and uses. The sub-regional integrated resource management plans prepared by the government in the 1970's and 1980's provided much of this information and incorporated a public involvement process. The government then introduced a policy that required F.M.A. holders to carry out a public involvement process in conjunction with the preparation of their D.F.M.P.s. This public involvement process was not in place for the last series of government forest management unit plans prepared between 1985 and 1990.

Alberta is now embracing the concept of *sustainable forest management*. In fact, the government and many forest companies are already incorporating a sustainable forest management approach in their planning. It is anticipated that all Alberta forest managers will adopt a similar approach in the development of their *forest management plans (F.M.P.)*. The Interim Forest Management Planning Manual is intended to guide forest management planning in Alberta relative to this initiative.

1.1 FOREST MANAGEMENT PLANNING: GUIDING PRINCIPLES

Several key guiding principles apply to forest management plans prepared in Alberta at this time and have been kept in mind while preparing this planning manual. These principles are:

- The same basic forest management planning process is followed for Company D.F.M.P.s and government F.M.P.s.
- **Current sustained yield timber management planning is required under existing legislation but planning should move toward sustainable forest management** (SFM). The government recognizes the variability in production capacity and forest management staffing levels within the forest industry and that this may have an impact on the ability of any given Company to satisfy the requirement for SFM.

- One forest management plan should be prepared for an area. This will require the cooperation of all forest companies involved in this area. There is an expectation that forest companies and the government will cost share in areas of mutual interest.

- The current forest management administrative units (F.M.U. and F.M.A. boundaries) are respected but allow future forest management plans to recognize larger, ecologically relevant *landscape* units as the basis for sustainable forest management.

- The approach to forest management planning is open and consultative. It utilizes an extensive and ongoing public involvement process in which the government has an active role in presenting government policy, legislation and regional resource planning information. The government also assumes a role in the mediation of disputes arising from the planning process. The government will take into account the financial stake for input received during forest management plan review or in resolving consultation conflicts. Those parties with a greater stake should have a greater influence over decisions. This approach will facilitate prompt approval of forest management plans.

- The forest management plan is prepared and implemented with the collaboration of government agencies, other resource industries and the public.

- The forest management plan is developed in a series of components that are progressively reviewed and approved by the Department.

- Forest management planning is a dynamic process in that:

  * knowledge obtained through research and operational trials is incorporated;

  * forest management enhancements resulting from new national or provincial policy, or as a result of legislation changes, is captured;

  * performance monitoring mechanisms provide corrective feedback to the F.M.P. thereby improving performance;

  * operational plans are linked to the F.M.P. ensuring day to day operations are in compliance with the objectives set out in the forest management plan.

- The government respects approved FMA plans ***and tenure rights*** and ensures staff monitor and regulate forest company operations consistent with approved plans.

- Forest management recognizes timber and other forest resource values and considers the management of these values within the defined forest management area.

- ***The FMA holder has tenure rights to harvest and reforest trees on their FMA Area. They are also repsonsible for the mitigation of any adverse impacts of their activities on other forest resource values. They are not responsible for the management of these other forest resources.*** **This responsibility rests with the Crown. These values must, however, be considered by both the forest industry and the public.** The assessment and inventory of other forest resource values is a shared responsibility between the government and other resource industries. The government will not be unreasonable in it's expectations where other forest resource information is lacking or limited.

- Forest management planning will recognize all current resource commitments as the basis for future planning and decision making.

1.2 MANUAL PURPOSE

The purpose of this manual is to provide an update to existing forest management policy and provide guidance for future changes to forest management in Alberta. This manual is considered interim as further changes will occur to forest management planning in Alberta as a result of:

- revisions to the Forests Act and the *Timber Management Regulation*;

- implementation of the *Alberta Forest Legacy Document*;

- further development of national forest management initiatives (such as the Forest Accord, National Forest Strategy, Canadian Biodiversity Strategy, etc.); and

- new and important forest management requirements and ideas supported by research, in keeping with an *adaptive forest management* philosophy.

This manual will be reviewed and revised in consultation with appropriate stakeholders, no later than December, 2002. Any changes required as a result of the quota tenure review or the enhanced forest management initiatives will be incorporated at an appropriate time.

Forest companies will reference the date of the planning manual used in the preparation of their D.F.M.P. to serve as a benchmark for third party evaluations. **Forest companies may deviate from this planning manual process with prior approval from the department. The planning process used should address the key components *and expected results* contained in this manual.** The Terms of Reference would document any changes to the process. Forest managers may exceed the guidelines presented in this manual.

1.3 DOCUMENT ORGANIZATION

This manual is a series of replaceable sections. Most sections include subsections entitled explanation, content, and documentation. The explanation section provides contextual information and linkages to other parts of the forest management plan. The content section provides a broad overview for each planning component. The documentation section details the minimum information requirements associated with forest management plan development.

Italicized words are defined in the Glossary located at the back of the Manual.

1.4 DOCUMENT DEVELOPMENT

An internal Land and Forest Service team developed the initial draft of the Interim Forest Management Planning Manual. Other department agencies and the forest industry reviewed this initial draft through internal circulation and regional workshops held early in 1997. The Forest Management Science Council also had an opportunity to review and critique the draft manual. The Forest Management Planning Subcommittee of the Alberta Forest Products Association will serve as a referral body in the development and review of future versions of this manual.

The public will have ***further opportunities*** to be involved in the development of future forest management policy and procedures as defined in the Alberta Forest ***Legacy Document***.

Future versions of this manual will be available electronically through the department website, currently under development.

1.5 PLANNING PROCESS OVERVIEW

Figure 1 shows a hierarchy of strategic and operational plans and the "nested" nature of a typical D.F.M.P. Higher level plans provide direction to all subsequent plans lower in the hierarchy. Each of the levels of the hierarchy has a unique purpose and meets a particular planning need as described in Table 1. The characteristics that make each of the levels unique include:

- spatial scale: the geographic extent of the area referenced in the D.F.M.P.
- spatial resolution: the size of the geographic unit uniquely identified in the D.F.M.P.
- temporal scale: the time period forecasted and/or planned
- temporal resolution: the time steps used in the forecast and/or the D.F.M.P.

Forest management plans exist within a hierarchy of policy and other planning documents that are developed at a variety of scales from 1:1,000,000 to 1:10,000. In fact, there may be some overlap between planning levels and scales. Cabinet approved, subregional integrated resource plans cover portions of the province and contain integrated resource management direction that

could contribute to the development of a forest management plan. The *Integrated Resource Management (IRM)* framework, currently being developed by the government, is to provide an alternate system of plans for the remainder of the province. In fact, they will eventually replace existing subregional integrated resource plans.

Figure 2 presents time frames for the planning process and identifies planning products. The 20 year planning period depicted in Figure 2 is only a small portion of the total forest management planning time frame, which is currently set at 140 to 200 years. This represents two full life cycles or *rotations* for trees in managed forests. The 20 year period relates to the current term associated with the major types of forest tenure systems in the province. These tenure systems include Forest Management Agreements, *Coniferous Timber Quotas (C.T.Q.)* and *Deciduous Timber Allocations (D.T.A.)*. New or revised forest management plans may result in the review, renewal and/or the adjustment of disposition conditions and *Annual Allowable Cut (A.A.C.)* information associated with these tenure systems. In fact, forest managers must prepare new forest management plans no later than 10 years after the previous submission.

The government controls timber harvest levels for C.T.Q.s and D.T.A.s on a five year quadrant basis to ensure compliance with approved annual allowable cuts. For F.M.A.s, these quadrants are known as *cut control periods*. These five year time periods also serve as stewardship reporting intervals for performance monitoring activities.

New forest management plans are initiated with a Terms of Reference (the plan to do the plan) and a Public Involvement Plan. The Terms of Reference will contain the schedule for the development, review and approval of the forest management plan by the government. The Public Involvement Plan provides details on the public consultation process.

The rest of the F.M.P. processes are described in Sections 5, 6 and 7. They include:

- Resource management *goals*;
- Resource *analyses* (management *objectives*, landscape assessments, *resource management strategies* and selection of the *preferred forest management strategy*);
- Implementation strategy (How the forest management plan will be delivered);
- Performance Monitoring (What is monitored and tracked annually or periodically and what is reported in the *stewardship report*).

Forest management plans are implemented through approved *General Development Plans (G.D.P.)* and *Annual Operating Plans (A.O.P.)*. The G.D.P. is based on a rolling five year time frame providing harvest locations and associated roading information derived from the *cut sequence* identified in the approved forest management plan. The A.O.P. provides detailed information relative to proposed harvesting activities, including harvest design, road locations, water course crossings and reforestation plans. Department officials approve timber harvesting,

reforestation and road building activities as per the information contained in the A.O.P. Larger forest companies may also prepare *compartment plans* (optional) to cover periods of up to 20 years. These plans provide information on resource integration and harvest design for specific parts of the forest management area.

Plan performance is measured according to criteria established in the F.M.P. These criteria include *assumptions* used in the determination of the approved A.A.C., the resource management strategies and associated management objectives, F.M.A. conditions, and *ground rules*. Plan performance will be reviewed annually as per criteria established in the F.M.P. It will be reported to the public every five years with the submission of a stewardship report. This report will include clear statements of intent to correct performance that is not consistent with the F.M.P. In addition, where new information indicates that corrective action is in the best interest of sustainable forest management, the annual and periodic performance reviews may indicate the need to revisit the F.M.P. The forest manager will also report on performance problems associated with the F.M.P., even if they are beyond the control or mandate of the forest manager's responsibilities. The government will work with the forest industry to monitor and report on external factors impacting on D.F.M.P. performance where these factors are outside of the company's jurisdiction.

Figure 3 provides a summary of review and approval parties for the various stages of forest management plan development. All three levels of the Land and Forest Service are involved in the review and approval of forest management plans. The District is the "one window" for the coordination of forest management plan review and approval. Public involvement in forest management plan development and review is described in the Terms of Reference and the Public Involvement Plan.

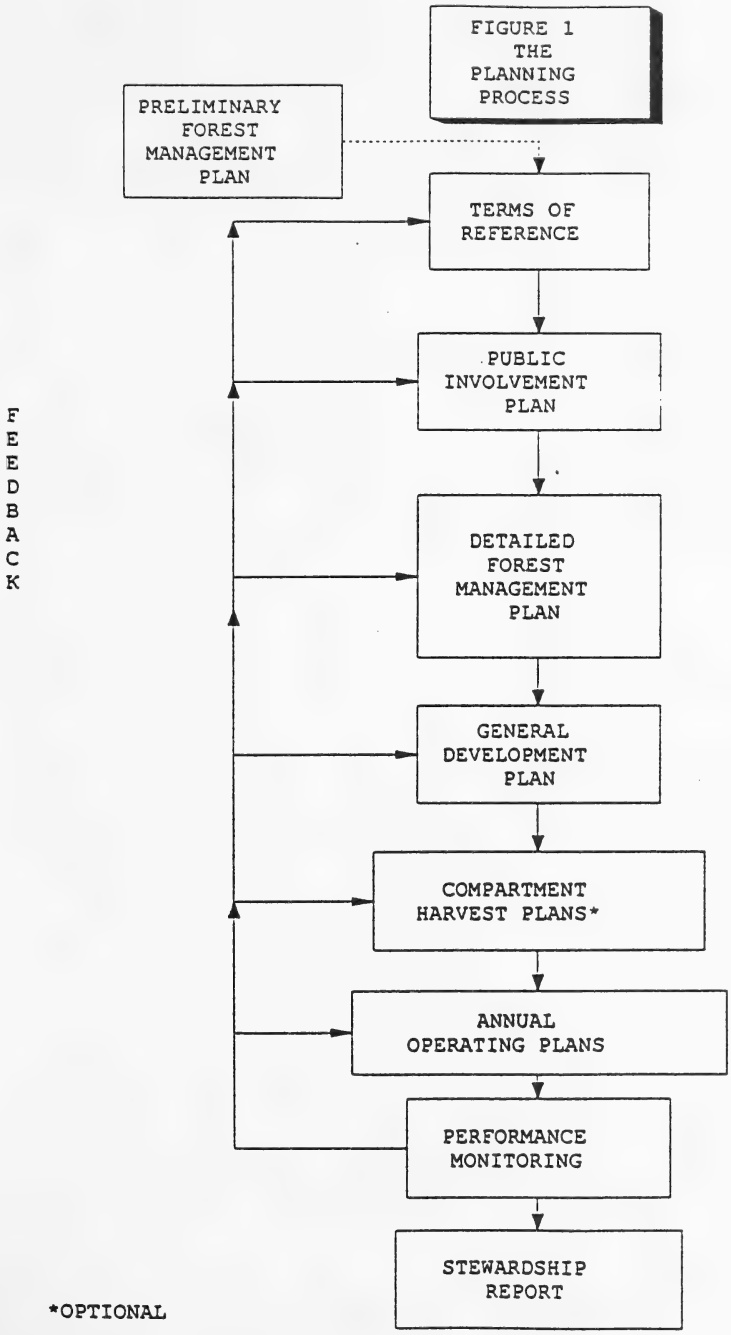
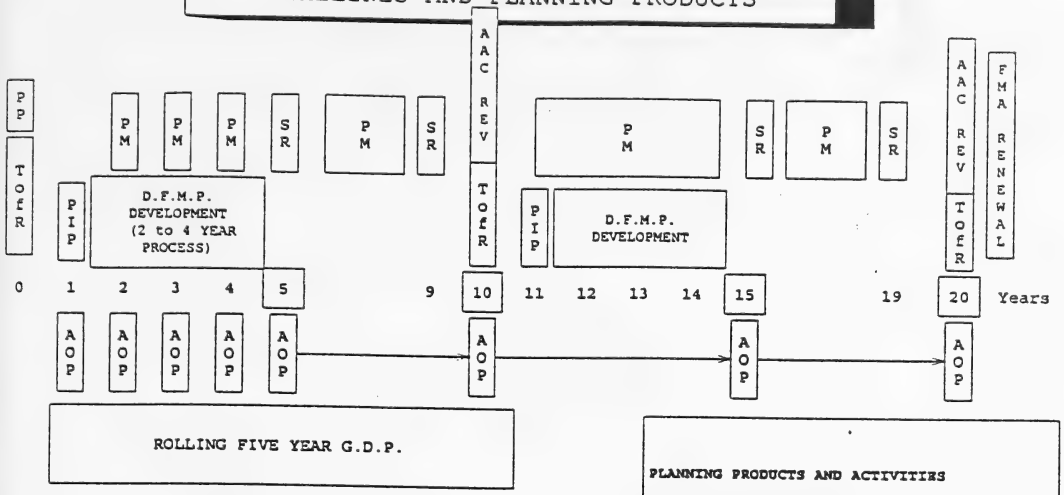


Table 1 Plan Description and Characteristics

Table 1 Plan Description and Characteristics

Planning Level	Purpose	Spatial		Temporal	
		Scale	Resolution	Scale	Resolution
Forest Management Plan / Analysis Report	F.M.U. and F.M.A. level of planning. Reflects all pertinent legislation and higher-order plans (e.g. IRPs and regional plans). Goals, indicators, objectives and strategies established for the management of resource values.	Management Area	Volume by strata, possibly within sub-units	Two rotations	5 - 10 year periods
General Development Plan (GDP)	"Disaggregate" F.M.P. schedule, recognizing operational objectives and constraints not accounted for in the F.M.P. For example, annual capital road costs, log profile requirements, etc.	Management Area	Volume by strata, likely by sub-unit	5 - 20 years	annual
Compartment Harvest Plan (CHP) *optional	A resource development plan for a sub-unit, describing road development and management, harvest design, silvicultural regimes, and site-specific strategies for management of other resource values. Consistent with strategies of FMP and ground rules. Note that the GDP and AOP cover these aspects where a CHP is not utilized.	Sub-unit	Volume by harvest block	one-pass through green-up	seasonal
Annual Operating Plan (AOP)	A list of blocks for operation in a given year and season consistent with timing in the GDP. Would also be consistent with the CHP, if developed.	Block	3 year	3 year	seasonal
Stewardship Report	To consolidate tracking of indicators and performance of the objectives at all planning levels. Performance is measured annually and cumulatively over the term of respective plans.	Management Area	five years	five years	as required by indicator

FIGURE 2 FOREST MANAGEMENT PLANNING TIMELINES AND PLANNING PRODUCTS



PLANNING PRODUCTS AND ACTIVITIES

ToR	Terms of Reference
PP	Preliminary Plan
PIP	Public Involvement Plan
DFMP	Final Detailed Forest Management Plan
GDP	General Development Plan
AOP	Annual Operating Plan
PM	Performance Monitoring
SR	Stewardship Report
	Quadrant or Cut Control Period

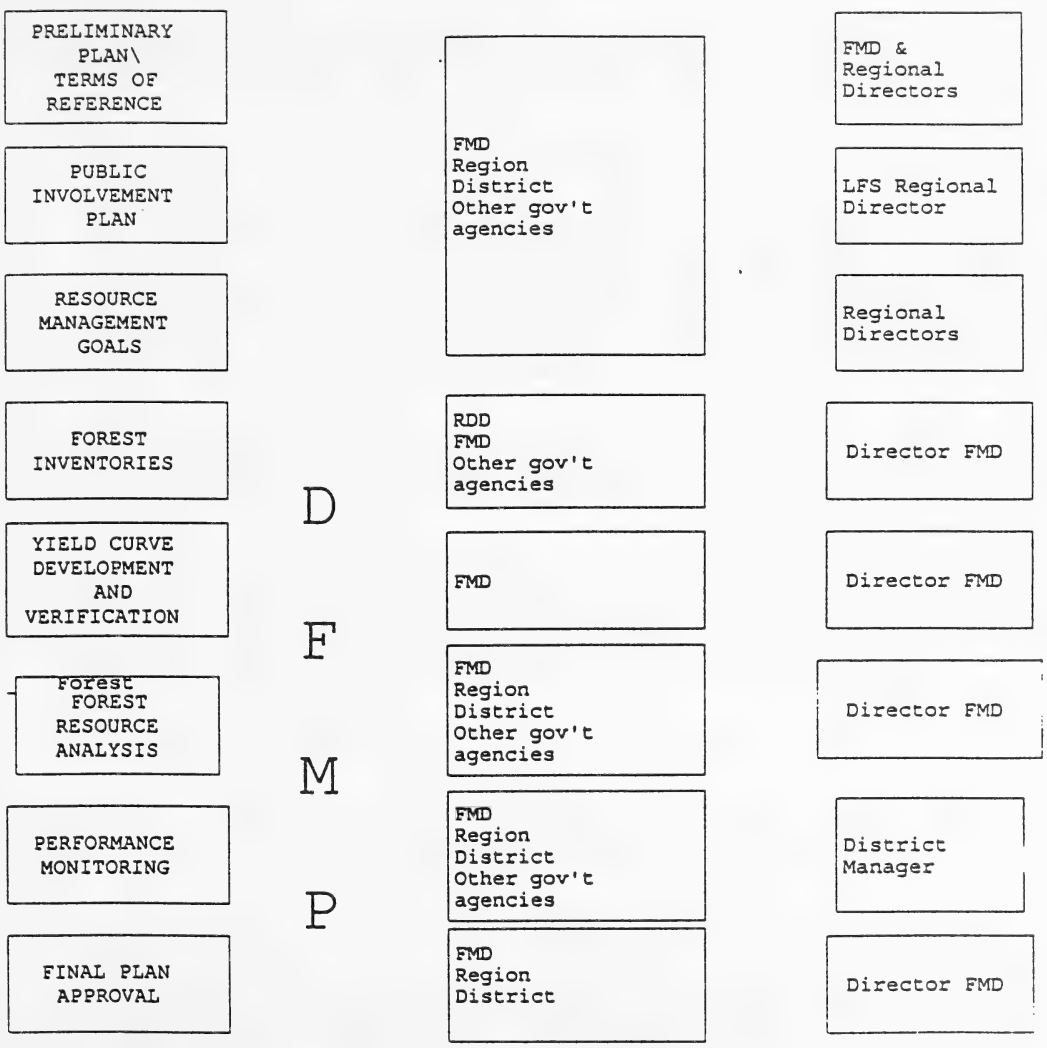
Annual amendments based on performance monitoring

Assuming performance monitoring indicates the plan is working properly, the plan can be formally redone every 10 years

PIP and ToFR prior to DFMP review does not necessarily have to be 1 year in advance of the review but must be built into the front end of the review

SR is required for FMA renewal process and represents a summation of the past 10 years of performance monitoring reports

FIGURE 3 FOREST MANAGEMENT ANALYSIS AND PLAN REVIEW AND APPROVAL



FMD Forest Management Division RDD Resource Data Division DFMP Detailed Forest Management Plan

1.6 INTERNAL GOVERNMENT POLICY

Internal government policy directives will address the review and approval process for all forest management plans. The development of these policy directives will involve the forest industry. All policy directives are available through the department's internet website located at: www.gov.ab.ca/~env/lfs/fmd/directives/index.html

The development, review and approval of forest management plans will also be consistent with the Code of Ethics of the Alberta Registered Professional Foresters Association.

The following items must be addressed in the development of all forest management plans:

- Quota Holders and other timber disposition holders within the plan area will be given the opportunity to participate in the development of the forest management plan. As such, the government expects these participants to indicate their acceptance of the forest management plan at key stages of the plan development process. In the event of disagreements, the government will facilitate a conflict resolution process. This process will be based on the principle that all parties will be reasonable in their expectations.

- FMA holders must ***provide the standard runs outlined in Section D of the Supplemental Guidelines - Timber Supply Analysis - Documentation of Results*** for comparison with the preferred forest management strategy selected by the FMA holder.

- The government will develop guidelines, pertaining to the application of the planning manual, for staff to refer to when reviewing company forest management plans. These guidelines will provide additional guidance relative to the various steps associated with the review of such plans and will clearly lay out roles and responsibilities.

1.7 COPYRIGHT INFORMATION

The Landscape Planning Centre Manager of the Forest Management Division must approve use of the Interim Forest Management Planning Manual by third parties. Requests can be made by phone, fax or letter as per the information provided below:

Forest Management Division
Land and Forest Service
Alberta Environmental Protection
9th floor Bramalea Building
9920 - 108 Street
Edmonton, Alberta, Canada
T5K 2M4
Telephone: (403) 427- 8474
Fax: (403) 427- 0085

2.0 PRELIMINARY FOREST MANAGEMENT PLAN

2.1 EXPLANATION

The F.M.A. specifies the requirement for a *Preliminary Forest Management Plan*. New F.M.A. holders submit their Preliminary Forest Management Plan within twelve months of the signing of the Forest Management Agreement. This plan provides information on the interim harvest level and associated short term harvest sequence to be used until the Detailed Forest Management Plan is submitted and approved. Forest management activities can commence with the approval of the Preliminary Forest Management Plan and associated A.O.P.s.

The F.M.A. holder is not required to carry out a public involvement process for a Preliminary Forest Management Plan given the short period of time it will be in effect. This does not preclude consideration of some form of public involvement in conjunction with the development of this plan. In fact, the initiation of a public involvement plan at this time could be in the best interest of the Company relative to public perception and cooperation.

The interim harvest level selected by the Company is to be based on the best resource information available, as approved by the government.

The approval authority for Preliminary Forest Management Plans rests with the appropriate Regional Director and the Director of the Forest Management Division.

2.2 CONTENTS

- Establish the interim harvest level and describe how it was determined.
- Identify interim management objectives and strategies.
- Describe the collection of new inventory data for the development of the D.F.M.P.
- A Terms of Reference is a component of the Preliminary Forest Management Plan.

2.3 DOCUMENTATION

- List the assumptions and background information contributing to the determination of the interim harvest level.
- Discuss the forest management and integrated resource strategies that affect the interim cut determination.
- List *stand* types used in the interim cut determination.
- Provide information on land base stratification (tables and maps).
- Show the growth and yield information used in the interim cut determination.
- Provide a harvest sequence for the time until the D.F.M.P. is prepared and approved.
- Provide supporting electronic data sets.

3.0 TERMS OF REFERENCE

3.1 EXPLANATION

The Terms of Reference is *"the plan to do the plan"*. It is the means by which approval is sought to begin the forest management planning process. The approval of this document is provided by the ***appropriate Regional Director and the Director of the Forest Management Division***. The Terms of Reference describes **how** the forest management plan will be developed, **what** products will be produced, by **whom, when** and **why**.

With respect to forest management plan revisions, the Terms of Reference must include the A.A.C. in effect for the period of time up until the revised plan is approved. Where a plan revision is in answer to a specified timing requirement, this interim cut level will be the previously approved A.A.C. However, where the plan revision is in response to some event or situation that invalidates the previously approved A.A.C., an interim cut level must be calculated and supported with whatever level of detail is possible. This would include an analysis outline and a short term harvest sequence.

Development of the forest management plan will require the involvement of a variety of publics with a variety of interests. The Terms of Reference shall describe the means by which the public will be effectively involved. The public includes the general public, special interest groups, affected timber operators, other resource users, Environmental Protection staff, and staff from other government departments.

In this regard, an interdisciplinary planning team approach should be used. The following groups should be consulted for their input and, where appropriate, they should also be given the opportunity to participate on any planning team(s):

- Affected timber operators and a Local Advisory Committee (LAC) representative
- Adjacent FMA holders relative to landscape units, ecological principles, etc.
- Environmental Protection staff
- Other provincial government department representatives (eg. Energy)
- Other resource users
- Consultant(s)

The principle author of the forest management plan should be a trained professional such as a Registered Professional Forester. This person should also be a member of any planning teams involved in the development of the forest management plan.

3.2 CONTENTS

- A schedule for F.M.P. development, submission, review and approval.
- A planning process outline indicating opportunities for external participation and review.
- A list of the known forest resource management issues and values to be addressed. Include any trans-boundary issues that affect management at a broader scale.
- The proposed management philosophy and approach to planning/operations.
- A strategy for public involvement indicating how public input will be used, including how contentious issues will be dealt with (i.e. conflict resolution) and how the results of public participation will influence management strategies/operations.
- A brief overview of the important elements of legislation, policies and other initiatives influencing plan development, including management strategies and operations. Policy initiatives would include the Alberta Forest Conservation Strategy, *Special Places, Eastern Slopes Policy*, Integrated Resource Management, Forest Care, etc.
- An explanation of how other resource values will be accounted for in the F.M.P., particularly where there is no integrated resource plan to provide this direction.
- Identify work that must be undertaken to develop the plan (ie. inventory collection).
- An indication of the approach to be taken relative to performance monitoring.

3.3 DOCUMENTATION

- Planning team members including names, affiliations and general responsibilities.
- Key publics, associated consultation mechanisms, and expected workloads.
- Work to be completed prior to submission of the F.M.P. Reference relevant legislation and policy initiatives that will influence F.M.P. development.
- Current status of the company, the F.M.A., and the processing facility, for D.F.M.P.s.
- Current status of the F.M.U., including existing commitments, etc., for F.M.P.s.

4.0 PUBLIC INVOLVEMENT PLAN

4.1 EXPLANATION

Meaningful public involvement in the development and implementation of forest management plans is important. The government has had a public involvement requirement for FMA forest management plans since 1990 and is now expanding this requirement to government developed forest management plans as well. The forest manager must be committed to follow through on issues and concerns that arise from the public participation process. This is particularly important given that approved plans are considered public documents. In addition, ongoing public involvement and participation will increase public understanding of forest management activities.

An interdisciplinary planning team approach should be used to develop F.M.P.s. This approach would involve individuals with ongoing responsibilities for plan preparation, as well as people from other groups or committees considered important to plan development and review. In addition, a joint government/forest company committee could provide planning teams with policy direction throughout the planning process. It is very important that a clear terms of reference be developed for public involvement initiatives. The terms of reference will provide boundaries for group discussions, identify responsibilities and rights, and will clearly state that the government has final approval and decision making power.

The public involvement process must also have performance measures and an evaluation component. These are indicators of a credible public involvement program.

The purpose of the following outline is to guide, not prescribe. Regional differences will result in a variety of approaches to public involvement. The key to success is meaningful involvement and participation, the best facilitation, and the desire to act on the outcomes of the process.

The public come from a variety of backgrounds and occupations. They can provide opinions, ideas and information for development of the plan by:

- expressing local community interests
- attending formal public involvement events
- identifying and analysing management alternatives
- identifying non-timber forest values
- proposing integration opportunities
- identifying solutions to resource use conflicts
- helping with monitoring of the plan
- providing feedback on the planning process
- serving on the interdisciplinary planning team

Possible Public Consultation Techniques

- public notices
- open houses
- information sessions
- public meetings
- advertising
- media events
- panel discussions
- focus sessions
- internet technology, etc.

Combinations of these different participation strategies can be used to provide the best results.

Please note that this list is for illustrative purposes only. There are no specific requirements relative to the use of these strategies in the design of a public involvement process.

All sources of public involvement are summarized and concerns documented. The forest manager considers how these concerns will be addressed and how *closure* will be reached. Closure can include facilitation, mediation, education, conflict resolution, and/or consensus.

There may be a public involvement component for most of the plan stages, including:

- Terms of Reference (F.M.P.)
- Public Involvement Plan
- Resource Management Goals
- Forest Management Objectives
- Selection of the Preferred Forest Management Strategy
- Plan Implementation
- Performance Monitoring

There is no one best way to develop and deliver a public involvement process. It is important, however, that there is a commitment to ongoing and continuous involvement. This does not imply that there is a public review process for annual operating plans.

The Public Involvement Plan is approved by the appropriate Regional Director.

4.2 CONTENTS AND DOCUMENTATION

- Describe the overall public involvement strategy.
- Provide a terms of reference for public involvement.
- Identify important public groups to be involved in plan preparation and review.
- Describe how issues are identified and resolved.
- Describe how public input will be responded to; ie. feedback mechanisms.
- Outline a public involvement performance monitoring strategy.

5.0 FOREST MANAGEMENT PLAN

INTRODUCTION

The forest management plan submission consists of:

- Resource management philosophy;
- Resource management goals (biological, economic and social);
- Forest management objectives, evaluation of resource management strategies and selection of the preferred forest management strategy;
- The implementation strategy (How the plan will be delivered operationally);
- Performance Monitoring (What is monitored and tracked annually or periodically and what is reported in the stewardship report).

Forest management plans are approved by the Director of the Forest Management Division.

The first stage in plan development is the identification of the resource management philosophy and goals that will guide resource management of the area over the next five to ten years. This information also provides a basis for defining the desired future forest state. Forest management objectives and associated resource management strategies can then be developed. These resource management strategies are tested and evaluated against the forest management objectives. Each resource management strategy is also assessed relative to other resource values and flows. The preferred forest management strategy provides for the achievement of forest management objectives and provides acceptable levels of other resource values and flows. It is made up of a number of resource management strategies and is to be documented in detail. The timber supply analysis, coniferous and deciduous A.A.C. calculations and other non timber resource flows, are integral components of the preferred forest management strategy (See Figure 4).

Agreement and progressive approval of plan components ensures that subsequent steps in plan development can proceed with confidence. Approval stages include:

- Resource management philosophy
- Resource management goals
- Forest management objectives and strategies
- Forest inventory verification
- *Yield curves*, *yield tables* and *volume tables*
- Final plan (includes resource management strategies tested and the preferred forest management strategy)

Other disposition holders must be given the opportunity to be involved at all stages of plan development.

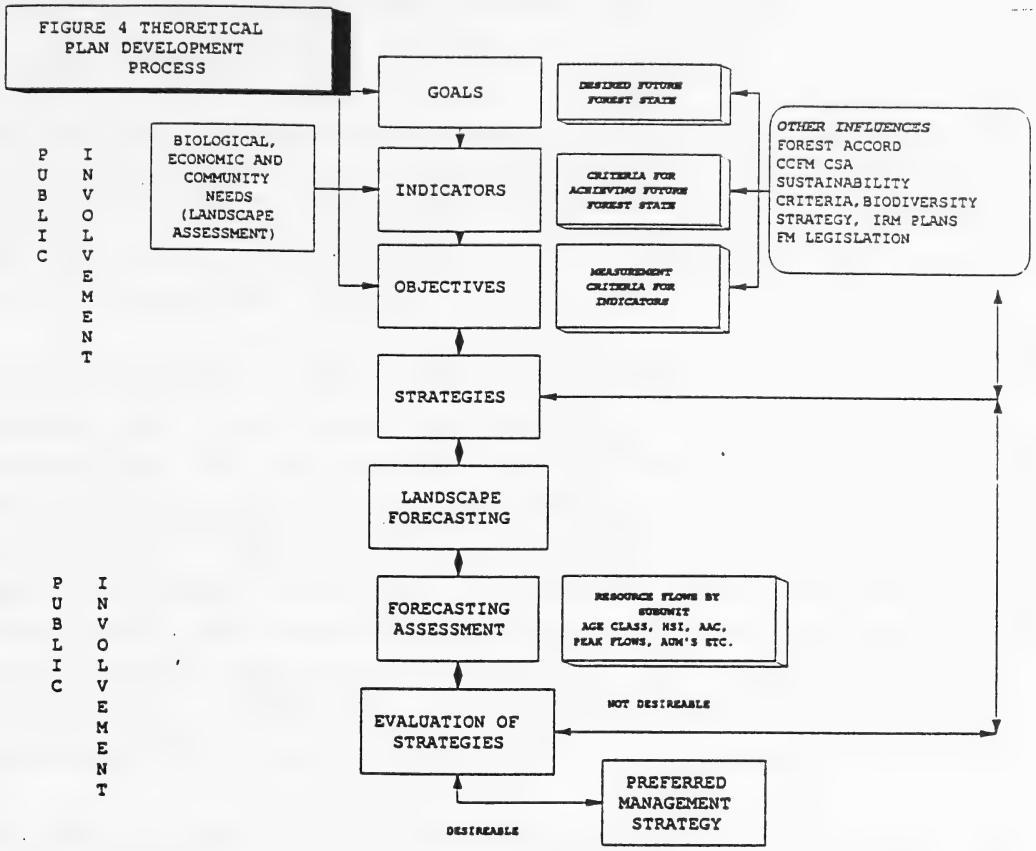


FIGURE 4 THEORETICAL PLAN DEVELOPMENT PROCESS
GOALS
DESIRED FUTURE FOREST STATE
BIOLOGICAL, ECONOMIC AND COMMUNITY NEEDS (LANDSCAPE ASSESSMENT)
INDICATORS
CRITERIA FOR ACHIEVING FUTURE FOREST STATE
OTHER INFLUENCES
FOREST ACCORD
CCFM CSA
SUSTAINABILITY CRITERIA, BIODIVERSITY STRATEGY, IRM PLANS
FM LEGISLATION
OBJECTIVES
MEASUREMENT CRITERIA FOR INDICATORS
STRATEGIES
LANDSCAPE FORECASTING
FORECASTING ASSESSMENT
RESOURCE FLOWS BY SUBUNIT AGE CLASS, HSI, AAC, PEAK FLOWS, AUM'S ETC.
EVALUATION OF STRATEGIES
NOT DESIREABLE
PREFERRED MANAGEMENT STRATEGY
DESIREABLE
PUBLIC INVOLVEMENT
PUBLIC INVOLVEMENT

5.1 RESOURCE MANAGEMENT PHILOSOPHY AND GOALS

5.1.1 EXPLANATION

The purpose of this portion of the plan is to explain the resource management philosophy and goals that will guide management of the those resources under the control of the forest manager over the next five to ten year period. It is this information that forms the basis for discussions concerning the current condition of the forest and the desired future forest state. There is also a need for the resource management philosophy to reflect the direction contained in national and provincial agreements, policies and plans.

In particular, the resource management philosophy and goals should address the biological, economic and social aspects of the area. This information is obtained through a landscape assessment. **The *Integrated Resource Management (IRM)* framework currently being developed by the Alberta government, is to provide a system of plans that will utilize a landscape assessment approach to resource management and decision making. Until such time as these plans are in place, however, forest managers are faced with the task of attempting their own assessments of the biological, economic and social influences on their planning areas. These assessments should be adequate to ensure that forest management activities will not unduly impact the opportunity to utilize or access other resource values. It is not intended that these assessments be used to plan for the management of other resource values.** The assessment and inventory of these other resource values are a shared responsibility between government and the resource industries. The government will not be unreasonable in it's expectations where other resource information is lacking or limited.

Goals related to biological aspects of the area consider those attributes contributing to *ecosystem* integrity. *Biodiversity* conservation is one of the more important attributes to consider in this regard. One approach to conservation of biodiversity focuses on the management of landscape pattern and structure. This "Coarse Filter" approach, as it is commonly known, is fundamental to ecological management. Other forest values may require special management and/or protection (e.g. *endangered, threatened and rare species*) via "Fine Filter" techniques. A combination of Coarse and Fine filter strategies is recognized as a sound approach to sustainable forest management.

Economic aspects include resource values related to markets, current use, future potential and development costs. Social aspects focus on the value of resources from a community perspective.

An evaluation of current forest land uses and values would contribute to the determination of the biological, economic and social aspects influencing the area. This information would also serve as the basis for defining management objectives which contribute to the achievement of the desired future forest state.

Forest management planners should evaluate ecological units on a broad scale to obtain an appropriate ecological management unit strategy between adjacent management areas. Such units are more conducive to a sustainable forest management approach. The existing hierarchy of ecological units follows:

Natural Subregion:	Expression of regional climate differences
Ecodistrict:	Defined by broad physiographic features
Ecosections:	Patterns of topography and vegetation types
Ecosites:	Combination of moisture and nutrient regimes resulting in characteristic vegetation composition and site capability
Ecosite Phase:	Dominant tree species variation within an ecosite, usually reflecting a successional stage

5.1.2 CONTENTS

- State the sustainable forest management philosophy.
- Identify important social, economic and environmental issues.
- Identify resource management goals.
- Describe the approach to landscape assessment. Suggested topic areas include:
    - Description of landscape pattern and structure including:
      - Forest *Age Class Distribution*
      - Amount and Distribution of Seral Stages
      - Patch Characteristics
      - *Forest Connectivity*
    - Description of landscape disturbance and *succession* including:
      - Natural Disturbance Interval
      - Timber Harvesting and Access
      - Successional Trajectory
      - Fire History Characteristics
      - Insect/Disease Infestation and Risk
    - Description of landscape use and function including:
      - Land Use and Allocation (including current use levels)
      - Forest Productivity (*productive* vs. *non productive land*)
      - Timber Resource
      - Fish and Wildlife Resources

- Water Resources
- Visual Resources
- Recreation Resources
- Historic and Culture Resources
- Other Forest Values

- Description of landscape resource dynamics including:
  - Fish and Wildlife
  - Hydrology
  - Tourism
  - Timber

5.1.3 DOCUMENTATION

- Reference government legislation, policies and plans that provide current direction.
- Provide a map of landscape planning units and sustained yield units.
- Provide analysis information, including assumptions and constraints, associated with the identification of resource management goals.
- Indicate models used, if any.
- Provide electronic data sets subject to appropriate data sharing and maintenance agreements between the government and the company.
- Rationalize resource management goals in terms of risks and opportunities.

The documentation must include the methods, *models*, assumptions, and analysis results used in goal setting. Any discrepancies in scale will need to be addressed in the discussion of results. Conclusions drawn from this process will feed into the identification of forest management objectives and the development of resource management strategies.

5.2 FOREST MANAGEMENT OBJECTIVES AND STRATEGIES

5.2.1 EXPLANATION

The desired future forest state is defined primarily on the basis of the results of a landscape assessment. Forest management objectives, that will lead to this condition, are developed. The objectives must be as specific as possible regarding the desired future forest state.

The objectives and strategies are the basis of the plan. All other information in the plan supports or meets the objectives. The result is a commitment by industry, government and the public to a course of action. The plan may be updated and revised as new information becomes available.

A review of previous plan objectives and resource management strategies provides an opportunity to improve the current management objectives and strategies. This review also identifies which successful resource management strategies should be continued. Understanding where and why revisions are required ensures changes to existing practices and procedures are appropriate.

Indicators and objectives describe **what** (indicators) and **how much** (objectives) is to be accomplished, and **when** (objectives), relative to a particular goal. An objective is met by implementing various strategies, tactics and actions. Objectives address what the management concerns for the forest management area are.

Objective and Strategy Development

Objectives must be measurable. Short and long term objectives should be outlined. Objectives are short term if associated resource management strategies can be achieved or completed within five or 10 years. Objectives become long term if they take in excess of 10 years to achieve. A staged approach to achievement is usually involved in the case of long term objectives.

The following questions should be considered when developing plan objectives and strategies:

- Can the objective be achieved in the short term or the long term?
- What strategies, tactics and actions are required to achieve the objective?
- Is the sequence of objectives critical to achievement?
- If the data shows that an objective cannot be achieved, and must be revised, how does this change the preferred forest management strategy?
- What performance monitoring criteria would be associated with the objective?
    - What data is needed to determine that these objectives are being met?
    - Is the data available or does it have to be gathered?
    - How will the data be collected? How long will it take to collect?
    - Does the data need to be updated? How often? How will it be updated?

Subject areas that may be considered for the purpose of defining objectives include:

Ecological

- biodiversity / *genetic diversity*
- forest connectivity
- ecological integrity

Timber

- coniferous/deciduous/mixedwood management
- sustainability
- fibre priorities
- harvest priorities / *utilization standards*

Forest Protection

- *forest health*
- fire and fuels
- insects and diseases

Silviculture

- *growing stock, establishment period, green up period, free to grow*, and growth rates
- *reforestation lag period*
- treatment and retreatment
- reforestation potential, *site productivity* and yields
- tree quality and genetics
- understorey

Watershed

- water quality and quantity
- erosion, siltation and flooding
- *riparian zones*

Grazing

- domestic *grazing carrying capacity*
- trails and access
- range improvements and maintain site productivity

Fish and Wildlife

- habitat
- riparian zones
- endangered, threatened and rare species
- hiding cover, shelter, corridors and critical areas
- access

Aesthetics and Recreation

- aesthetic values
- recreational opportunities
- access

Soils

- erosion potential
- productivity

Socioeconomic

- *social benefits*
- flow of benefits
- commercial opportunities

Forest Inventory

5.2.2 CONTENTS

- List current and past management objectives to establish the basis for change projected in a new analysis.
- Summarize recommendations from monitoring programs, performance reviews, *audits* and stewardship reports that identify both successful and unsuccessful resource management strategies used for the previous planning period.
- Describe the desired future forest state.
- List and justify the forest management objectives leading to the desired future forest state.
- Describe resource integration initiatives.
- Identify linkages between resource activities and strategic, tactical, and operational planning.

5.2.3 DOCUMENTATION

- Supporting ecosystem assessment results.
- Linkages to resource management strategies and modelling assumptions.

5.3 EVALUATION OF RESOURCE MANAGEMENT STRATEGIES AND SELECTION OF THE PREFERRED FOREST MANAGEMENT STRATEGY

5.3.1 EXPLANATION

Each resource management strategy will be tested against related management objectives. Each resource management strategy must also be tested against other resource management strategies to determine whether all management objectives are being met. As part of this exercise, it may be

necessary to revisit and adjust management objectives. The preferred forest management strategy is comprised of compatible resource management strategies that best achieve these objectives.

5.3.2 CONTENTS

- A list of the resource management strategies tested.
- An evaluation of how these resource management strategies meet objectives.
- A description of the preferred forest management strategy.
- Justification for selection including resource management strategy integration considerations.
- A summary of potential timber and non timber resource flows.

5.3.3 DOCUMENTATION*

- Timber Supply
    - Data Collection and Compilation
        - Volume Sampling
        - Yield Curve, Yield Table and Volume Table Development
        - Inventory/Netted Down Land Base
        - Land Base Stratification
    - Timber Supply Models
    - Timber Supply Analysis Procedures
    - Harvest Sequencing
- Resource *Constraints*
- Resource Analysis Assumptions
- Documentation of Non-Timber Models Used
- Development of the Preferred Forest Management Strategy
- Recommendations for Improvement

* **See Supplemental Guidelines: Timber Supply Analysis Documentation Requirements**

6.0 IMPLEMENTATION STRATEGY

6.1 EXPLANATION

Implementation of the preferred forest management strategy should identify changes to policy and practice (eg. Ground Rules) and reference management objectives associated with landscape units, F.M.U.s and/or F.M.A.s. Operating plans will be required to implement the resource management strategies developed in the forest management plan. The content of these operating plans is not prescribed in order to provide each organization with the flexibility to define its own operating plan framework. This framework will be included as part of the organization's operating ground rules. The framework must meet the minimum intent as described in the following section.

This manual assumes that the two common levels of operational levels to be used will be the General Development Plan (G.D.P.) and the Annual Operating Plan (A.O.P.). Alternate methods of implementation can be presented in the Terms of Reference for approval by the government.

Deviations from the sequencing approved in the forest management plan must be identified and defended in the G.D.P. Plan objectives and the A.A.C. analysis should be revisited to assess significant changes to the approved cut sequence. It is possible that changes in the harvest schedule will require an amendment to the forest management plan. Careful planning of operations during the development of the forest management plan and the G.D.P. will reduce the number of plan amendments.

During the L.F.S. review of the G.D.P. and A.O.P. documents, there will be referrals to relevant government agencies.

G.D.P.

The G.D.P. is prepared annually and provides information on operational activities for the next five year period. These activities must be consistent with the preferred forest management strategy and associated management objectives. As such, forest operations are to be summarized and justified according to the approved forest management plan. The G.D.P. also provides lead time for disposition planning and information on cut control.

A.O.P.

The A.O.P. details annually how and where timber harvest operations will occur. This includes road development, *operability*, harvest design, consideration of other users, logging impact mitigation, reclamation and reforestation.

Review of the A.O.P. ensures that it is complete and that it is consistent with the forest management plan. Operational activities will facilitate the achievement of other resource and environmental objectives.

The government respects approved FMA plans and tenure rights and ensures that their staff monitor and regulate the forest company's operations consistent with the approved plan.

6.2 CONTENTS

- Description of landscape management unit implementation initiatives.
- Landscape management unit operating *guidelines* (may tie into ground rules).
- Develop operational plans that deliver the preferred forest management strategy on the ground during the term of the forest management plan. As noted earlier, the operational plans are the General Development Plan and the Annual Operating Plan.
- Establish appropriate operating ground rules or ground rule revisions for the area that are consistent with the approved forest management plan.
- Explain the connection/linkages to the forest management plan.

6.3 DOCUMENTATION

- Appendix 1 provides G.D.P. and A.O.P. content examples.

7.0 PERFORMANCE MONITORING AND STEWARDSHIP REPORTING

7.1 EXPLANATION

Adaptive management is an integral component of forest management in Alberta. Management activities are modified based on the experience gained from previous activities. Performance monitoring and the analysis of the monitor data provides feedback so that improvements in management can be made. Feedback results in changes to operational plans and activities as well as the forest management plan. Reporting on the results of performance monitoring provides a measure of accountability to the public on management effectiveness. It also contributes information to provincial, national and international sustainability reporting systems.

An annual performance report is used to record results in the preceding year. In addition, it tracks cumulative performance from the time the forest management plan is implemented. This report is reviewed annually with no formal submission required, but will be reviewed as identified in the Public Involvement Plan.

The stewardship report is a more formal compilation of performance prepared and submitted every five years. Forest managers will report on performance problems associated with the F.M.P., even if those problems are beyond their control or mandated responsibilities. The government will work with the forest industry in monitoring and reporting on external factors affecting D.F.M.P. performance. Performance successes should also be noted in this report.

Criteria and indicators are established as part of the process of setting goals and objectives. These variables should be monitored so that progress towards the set of objectives can be measured. In addition, as part of the timber supply analysis, *sensitivity analysis* may be used to identify variables which have a substantial effect on the results of the analysis. Consideration should be given to monitoring these variables as well. *Tolerance limits* may be established for the variables being monitored. Results which exceed the tolerances will trigger specific actions. Cumulative effects of management practices should also be addressed.

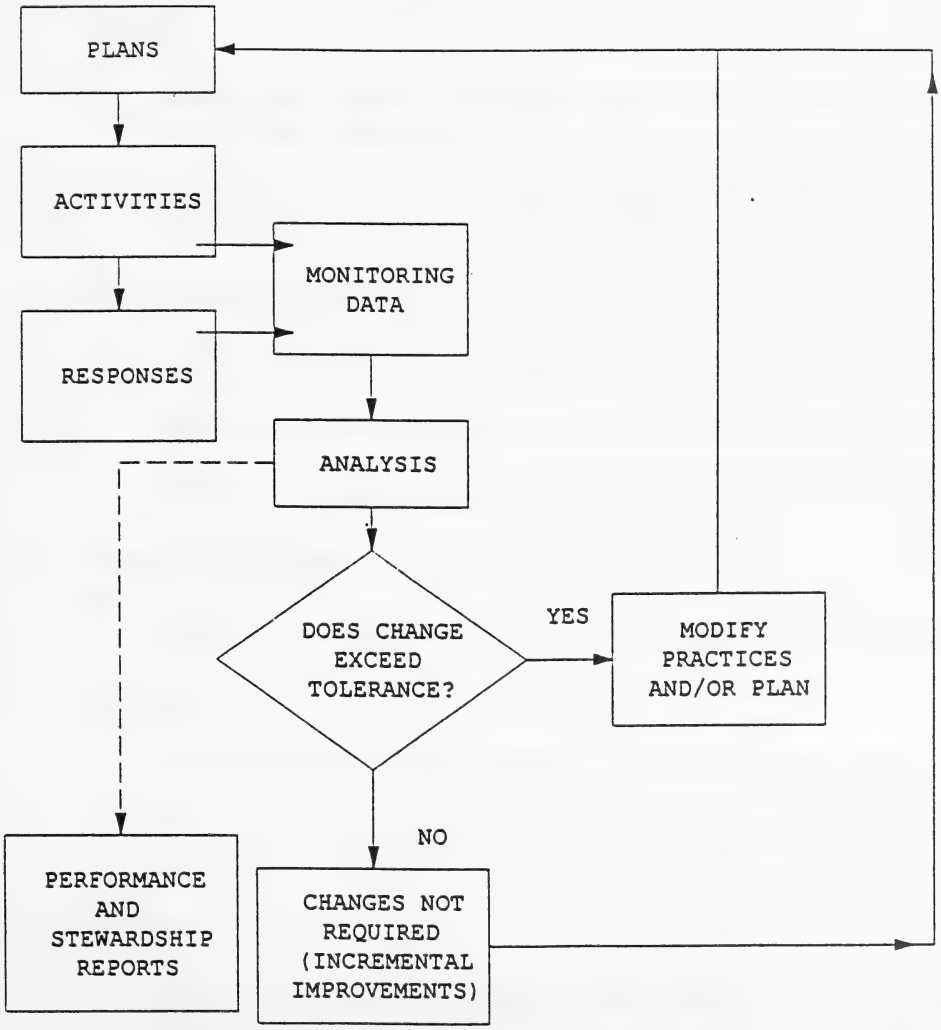
The forest manager must establish an adaptive management process that:

- tracks actual activities in comparison to forecast activities,
- tracks actual responses to management activities and compares to forecasted responses,
- has the ability to detect and assess impacts arising from change,
- triggers appropriate actions to correct or mitigate any negative impacts of the change.

Compliance to legislation, agreements and ground rules is not intended to be part of the forest management plan performance monitoring. Company performance in these areas is reported separately. In fact, the Cabinet approved document, "Recommendations Regarding Alberta's Forest Management Agreements", references the importance of performance criteria in the negotiation of F.M.A. renewals.

A conceptual framework for adaptive management is indicated in Figure 5.

FIGURE 5 PERFORMANCE MONITORING AND ANALYSIS



7.2 CONTENTS AND DOCUMENTATION

Performance information compares actual results to plan expectations including the achievement of objectives, land base additions versus deletions, planned activities versus actual, etc. **The following provides a framework for reporting that would be linked to criteria documented in the forest management plan. The actual criteria are presented in the approved plan as commitments and assumptions. Regulatory performance or compliance is reported through existing, separate reporting systems (eg. scaling, production, etc.)**

1. Planning

- Report on amendments to the forest management plan, including descriptions and the need for further analysis.
- Update the status of revisions and/or negotiations associated with relevant ground rules, F.M.A.s, C.T.Q.s, D.T.A.s and M.T.U.s.

2. Achievement of Plan Objectives

- Assess planned targets against actual results for each management objective.
- Provide reasons and discuss implications where targets have not been achieved.
- Identify and explain differences between planned and actual activities.

3. Performance Indicators and Objectives

- Assess the current performance indicators as they relate to management objectives.

4. Assumptions

- Evaluate resource modelling assumptions and discuss emerging trends or issues.
- Conduct sensitivity analysis to decide if deviations from assumptions used in the plan have exceeded pre-determined tolerance levels.

5. Inventory

- Provide information on inventory initiatives that were planned in the forest management plan, including aerial photography, *Permanent Sample Plots (P.S.P.s)*, ecological inventories and non timber resource inventories, etc.

6. Research

- Provide a summary of research activities identified in the F.M.P. including emerging trends or issues, inventories and non timber resource inventories.

7. External Contacts/Public Communications

- Report on public involvement initiatives undertaken throughout the year.

8. Land Base Summary

8.1 Land Surface Dispositions

- Reporting of all lands withdrawn from, and added to, the forest land base. This would include roads, well sites, easements, etc. Reporting should be segregated by landscape unit or sustained yield unit.

- Area and volume retained by operating area for non timber considerations as compared to forest management plan assumptions. The volume reported would relate to the A.A.C.

- Volume lost to non timber uses (eg. lineal disturbances, etc.)

8.2 Natural Disturbance Changes

- Provide information on significant events relative to A.A.C. assumptions (eg. fire, insects, disease, wind throw, etc.)

- Reclamation, reforestation and/or afforestation activities associated with disturbed areas and/or non productive lands (burns, deciduous scrub, drainage projects, etc.)

9. Harvest Production Summary

9.1 Forest Management Area

- Report annually and by five year period, the area cut by operating area and yield strata. This information should be reported by company and disposition.

- Report annually and by five year period, the volume cut by species, operating area and yield strata. This information should be reported by company and disposition.

- Volume harvested versus the harvest projection identified in the timber supply analysis.
- Document remaining volumes (reserves).
- Identify deferred volumes and timing of availability (e.g., wildlife areas).

10. *Silviculture* and Enhanced Forest Management

- Actual versus assumed regeneration lag.
- Yield strata conversion.
- Regenerated yields.
- Enhanced forest management activities; actual versus projected.

APPENDIX 1

Example Content for Annual Operating and General Development Plans

The contents of the General Development Plan and the Annual Operating Plan will normally be described in the operating ground rules or defined as part of the implementation strategy for the approved forest management plan. **The following items are provided for illustrative purposes.**

G.D.P.

- A list of emerging resource issues and risks associated with the forest management plan with an explanation as to how they will be addressed during the planning period.
- A wood supply forecast and associated depletion information.
- Maps showing a five-year harvest sequence.
- An access plan that includes maps showing proposed corridors for the five-year term of the forest management plan. The plan provides information on the mitigation of all road related forest resource and environmental concerns.
- Maps showing the location of non timber resources.
- A reforestation plan with proposed reforestation and stand tending tactics, strategies, and operations. Provide tables and maps. Document the reforestation support required for these activities including: seed collection, planting stock production and tree improvement, etc.
- A forest inventory map classifying stands by their condition using the following criteria:
  - stands damaged by blowdown, insects, or other causes,
  - over mature stands,
  - unstable stands,
  - reforested and young stands, and
  - immature and unmerchantable stands.
- A watershed assessment that identifies erosion potential, unstable soils, steep slopes, watercourse classification and water-source areas.
- Fish and Wildlife information including tables and maps showing wildlife habitat zones, fish-bearing streams, etc.
- Understorey information at the stand level is detailed with tables and maps.
- Enhanced stand and site assessment information where necessary for planning operations.
- A description of the potential impacts from logging on other resource values.
- A description of alternate harvesting methods on complex or sensitive sites.
- An insect and disease management strategy describing problems within the planning area and the strategies for dealing with them (i.e., spraying, harvesting targeted areas).
- A fire management plan including prescribed burn and wildfire hazard reduction programs.
- A contingency wood strategy, including criteria for accessing these areas. Contingency area may be used to offset volume shortfalls or bad weather influences that occur during an operating season.

- *Miscellaneous Timber Use* areas and volume for a five-year period. Local Advisory Committees are involved in the management or allocation of permit wood. The process for collaboration is presented in the plan along with the volume and sequencing information.
- Volume forecasts by species, product, disposition and company.
- A summary of proposed inventory, research, monitoring and operational activities.
- A summary of management activities proposed to sustain or enhance non timber resources.
- Supporting data sets are provided in electronic form.

A.O.P.

- Stands scheduled for harvest are identified on maps and summarized by age class (or stage of management). Included are stands scheduled for:
  - ~ fire management and/or fuel reduction
  - ~ timber salvage
  - ~ insect and disease management
  - ~ renewal or tending operations
- Timber disposition information. When two or more operators have overlapping timber dispositions, they shall cooperate on the harvest design (cut block layout). Provide estimates of harvest volume by species, product, and disposition holder. The harvest design includes:
  - ~ An integrated harvest design including *merchantable* coniferous and deciduous stands;
  - ~ A description of the harvest agreement between the operators that identifies the rights and responsibilities for harvest operations, reclamation and reforestation;
  - ~ A schedule identifying harvest, reclamation and reforestation activities.
- Maps and tables showing the volume of scheduled seed collection by species, seed zone, type of collection area, and the methods of collection or procurement.
- Summarize planting activities by numbers, species, seed zone, and stock type and grower.
- Identify the type and location of scheduled tree improvement activities.
- Maps showing proposed Class I , II, and III roads, along with any use management requirements including maintenance, access control, reclamation and stream crossings.
- Map proposed temporary roads locations.
- Provide a reclamation and abandonment plan and maps showing the status of each road by class, current condition, length, terms of use, etc. Maps would include information on proposed road upgrades, reactivations, reconstruction and reinstallation of stream crossings.
- Maps of areas of particular value and sensitivity (i.e. sensitive watersheds, sensitive soils, mineral licks, native land claims, ecological hot spots, etc.)
- A list of all scheduled regeneration monitoring activities for the upcoming year.
- A list of all other scheduled monitoring activities for the upcoming year.
- A list of non timber related activities that sustain and enhance other forest values. These activities require approval if they access or disturb public land.
- Electronic data sets for all data where applicable.

8.0 GLOSSARY

The following terms are used in the Forest Management Planning Manual. Definition sources are listed at the back of the Glossary and noted in brackets after the definition, where applicable. Some definitions have been altered from the original source.

ADAPTIVE FOREST MANAGEMENT: Forest management based on the assumption that scientific knowledge is provisional and focuses on management as a learning process or continuous experiment, where incorporating the results of previous actions allows managers to remain flexible and adapt to uncertainty. (11)

AGE-CLASS DISTRIBUTION: Intervals into which the age range of trees, forests, stands or forest types is divided for classification and use. (5)

ALBERTA FOREST CONSERVATION STRATEGY: A strategy being developed by Albertans to ensure that the forested area of the province continues to provide Albertans with social, ecological and economic benefits into the future. (4)

ANALYSIS: A detailed examination of a body of data, a series of decisions, or the implications of one or more policies, and a determination of what this examination reveals about the nature, function and/or relationships in effect. (10)

ANNUAL ALLOWABLE CUT (A.A.C.): The volume of wood which may be harvested, under management, on an annual basis. (5)

ANNUAL OPERATING PLANS (A.O.P.): Plans prepared and submitted annually by timber operators describing how, where and when to develop roads and harvest timber. They describe the integration of operations with other resource users, the mitigation of the impacts of logging, the reclamation of disturbed sites and the reforestation of harvested areas. (2)

ASSUMPTIONS: A judgmental decision made by a planner or decision maker that supplies missing values, relationships, or societal preferences for some informational component necessary for making a decision. (10)

AUDIT: An official examination and verification of records, activities, accounts, actions, operations, etc. against stated standards of performance and compliance.

BIODIVERSITY (BIOLOGICAL DIVERSITY): The variety and variability within and between living organisms from all sources such as terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part. (11)

CLOSURE: Bringing an issue or concern to an end or conclusion. With respect to public involvement, closure involves acknowledging input provided, addressing this input, and communicating decisions relative to all input received.

COMPARTMENT PLANS: Plans describing forest management activities within a geographic subunit of a forest, sustained yield unit or forest management unit.

CONIFEROUS TIMBER QUOTA (C.T.Q.): A coniferous timber quota grants the right to harvest a percentage share of the annual allowable cut of a designated forest management unit for up to a 20 year term as defined under the Forests Act. (1)

CONSTRAINT: The restriction, limitation, or regulation of an activity, quality, or state of being to a predetermined or prescribed course of action or inaction. Constraints can arise from the influence of policies, political will, management direction, attitudes, perceptions, budgets, time, personnel, data availability limitations, or a complex interaction of all these factors. (10)

CUT CONTROL (PERIOD): A five year harvest period also known as a quadrant. (1)

CUT SEQUENCE: The order of harvest operations in time and space.

DECIDUOUS TIMBER ALLOCATION (D.T.A.): Deciduous quota allocation defined on an area or volume basis for up to a 20 year term under the Forests Act. (1)

EASTERN SLOPES POLICY: A Policy for Resource Management of the Eastern Slopes. A policy covering about 90,000 km^2 of the eastern slopes of the Rocky Mountains in Alberta. It was first released in 1977 and revised in 1984. The policy presents the Government of Alberta's resource management policy for the public lands and resources within the region. (6)

ECOSYSTEM: Any complex of living organisms and their environment that we isolate mentally for purposes of study, or which at a given scale can be perceived as a discrete unit and can be managed as such. (11)

ENDANGERED, THREATENED AND RARE SPECIES: Classifications of the status of species populations as determined by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). Endangered indicates any indigenous species of fauna or flora that is threatened with imminent extirpation or extinction throughout all or a significant portion of its Canadian range. Threatened indicates any indigenous species of fauna or flora that is likely to become endangered in Canada if the factors affecting its vulnerability do not become reversed. Rare indicates an indigenous species of fauna or flora that, because of its biological characteristics or because it occurs at the fringe of its range, or for some other reasons, exists in low numbers or in very restricted areas in Canada but is not a threatened species. (10)

ESTABLISHMENT PERIOD: The time elapsing between initiation of regeneration and its acceptance according to defined free-to-grow criteria. (10)

EVEN FLOW: In harvest scheduling, the requirement that the harvest level in each period be equal to the harvest level in the preceding period. (8)

FORECAST: A prediction of future conditions and occurrences based on the perceived functioning of a forest system. A forecast differs from a 'projection' which is a prediction of anticipated future conditions based on an extrapolation of past trends. (10)

FOREST CONNECTIVITY: A measure of how well different areas (patches) of a landscape are connected by linkages such as habitat patches, or corridors of like vegetation. (10)

FOREST HEALTH: As a specific condition, the term refers to a growing forest having many or all of its native species of plants and animals. As a management objective, it refers to maintaining or restoring the capacity of a forest to achieve health. (10)

FOREST MANAGEMENT AGREEMENT (F.M.A.): A contract between the Province of Alberta and the F.M.A. holder whereby the Province provides an area based Crown timber supply. In return, the F.M.A. holder commits to:

- Managing the timber resource on a perpetual sustained yield basis taking into consideration a broad range of forest values in determining forest management practices.
- Meeting defined economic objectives including capital investment and job creation, and seeking out new business opportunities that provide measurable economic benefits for both the Province and the F.M.A. holder.

The F.M.A. gives the F.M.A. holder the right to access Crown fibre and in return the F.M.A. holder commits to forest management responsibilities, which may change from time to time. (11)

FOREST MANAGEMENT PLAN: A generic term referring to both Forest Management Unit plans prepared by the government, and Detailed Forest Management Plans prepared by industry.

FOREST MANAGEMENT UNIT (F.M.U.): An administrative unit of forest land designated by the Minister, as authorized under Section 14(1) of the Forests Act. (1)

FORESTS ACT: Revised Statutes of Alberta 1980, Chapter F-16 as amended from time to time. It establishes the authority and means by which the Minister of Environmental Protection administers and manages timber on public land for sustained yield. It describes how timber allocations can be made on crown land and empowers the Minister to enforce the Act and associated regulations. (1)

FREE-TO-GROW: Stands that meet stocking, height, and/or height growth rate as indicated by

specifications or standards, and are judged to be essentially free from competing vegetation. (5)

GENERAL DEVELOPMENT PLANS (G.D.P.): Five-year operating plans. They provide a comprehensive description of the proposed harvest strategy and the associated renewal activities for all areas impacted by the plan. (2)

GENETIC DIVERSITY: The genetic variability within a population or a species. The number and relative abundance of alleles. Genetic diversity can be assessed at three levels:
1. Diversity within breeding populations;
2. Diversity between breeding populations within any one geographic area;
3. Diversity within the species. (10)

GOALS: Broad statements of intent or direction relative to an aim, end or state of being to be achieved at some point in the future or maintained over a period of time. (4)

GRAZING CARRYING CAPACITY: A level of grazing use that will allow for the long term maintenance of forage production within some predefined level of management activity.

GREEN-UP PERIOD: The time needed to re-establish vegetation after a disturbance. Specific green-up periods may be established to satisfy visual objectives, hydrological requirements, or as a means of ensuring re-establishment of vegetation (for silviculture, wildlife habitat, or hydrological reasons) before adjacent stands can be harvested. (10)

GROUND RULES: Ground rules provide direction to industry and government for planning, implementing and monitoring forestry operations on Crown lands in Alberta. They are negotiated indicators of best forestry practices for a given F.M.U. or F.M.A. They highlight important management principles, define operating and planning objectives, and present standards and guidelines for timber harvest, road development, reclamation, reforestation and integration of timber harvesting with other forest uses. They are authorized by the Forests Act and the Timber Management Regulation. (2)

GROWING STOCK: The sum (by number, basal area or volume) of trees in a forest or a specified part of it. (5)

GUIDELINES: A set of recommended or suggested methods or actions that should be followed in most circumstances to assist administrative and planning decisions, and their implementation in the field. Note that guidelines cannot, by definition, be mandatory. (10)

INTEGRATED RESOURCE MANAGEMENT (IRM): A holistic resource management philosophy and approach where the underlying intent is to share and coordinate among a broad range of values and interests when conceiving, designing and implementing land and resource

policies, programs or projects. The concept of IRM is based on the idea that adoption of an inclusive view, examination of interconnections among values, and the identification of common goals and key elements upon which to focus management attention, can derive maximum benefits from scarce resources. (9)

LANDSCAPE: A expanse of natural or human-made scenery, comprising landforms, land cover, habitats, and natural and human-made features that, taken together, form a composite.(10)

LONG RUN SUSTAINED YIELD AVERAGE (LRSYA): The hypothetical timber harvest that can be maintained indefinitely from a management area once all stands have been converted to a managed state under a specific set of management activities. (10)

MERCHANTABLE: A standard applicable to stands of timber or to individual trees indicating net usable volume. (2)

MISCELLANEOUS TIMBER USE: A term used to describe a category of timber use that provides for those operators who harvest volumes through permits.

MODEL: An idealized representation of reality developed to describe, analyse or understand the behaviour of some aspect of it. A mathematical representation of relationships under study. The quest to find a subset of variables and a function between them that predicts one or more dependent variables. (10)

NON-PRODUCTIVE LAND: Forest land currently incapable of producing a merchantable stand within a reasonable length of time. (5)

OBJECTIVE: A clear, specific statement of expected quantifiable results, related to one or more goals, to be achieved within a defined period of time. An objective is commonly used to set a desired level of an indicator, to achieve a goal. (11)

OPERABILITY (LOGGING): Classification of a forest site based on the potential to harvest the timber on this site. The physiographic characteristics and moisture conditions of the site are critical to this classification, as is the harvesting equipment available and the technology associated with the harvesting operation.

ORDER IN COUNCIL: An order made by the Lieutenant Governor or Governor General by and with the advice of the Executive or Privy Council, sometimes under statutory authority or sometimes by virtue of royal prerogative. (12)

PERMANENT SAMPLE PLOT (P.S.P.): A fixed or variable area plot established for (forest)

sampling and measurement purposes and designed for remeasurement. (3)

PREFERRED FOREST MANAGEMENT STRATEGY: A set of compatible and integrated resource management strategies that has been selected to guide plan implementation.

PRELIMINARY FOREST MANAGEMENT PLAN: A plan submitted by F.M.A. holders within twelve months of the signing of a new agreement (includes a major revision to an existing agreement). It establishes an interim harvest level and cut sequence complete with justifications. It is the basis for harvest authorization until replaced by the Detailed Forest Management Plan. (1)

PRODUCTIVE LAND: Land primarily intended for growing, or currently supporting, forest. Includes land not now forested. Forest land capable of producing a merchantable stand within a reasonable length of time. (5)

REFORESTATION: Activities involved in forest renewal (site preparation, tree planting, etc.).

REFORESTATION LAG PERIOD: The time between completion of timber harvest operations and the establishment of a regenerated stand, based on current procedures for evaluating successful stand establishment. (10)

RESOURCE MANAGEMENT STRATEGY: A selection of compatible objectives for a specific resource that determine the direction for use and management of that resource.

RIPARIAN ZONE: Those terrestrial areas where the vegetation complex and microclimate conditions are products of the combined presence and influence of perennial and/or intermittent water, associated high water tables, and soils that exhibit some wetness characteristics. (10)

ROTATION: The period of years required to establish and grow even aged timber crops to a specified condition of maturity. (5)

SENSITIVITY ANALYSIS: An analytical procedure in which the value of one or more parameters is varied and the changes that this produces are analysed in a series of iterative evaluations. If a small change in a parameter results in a proportionately larger change in the results, the results are said to be sensitive to the parameter. (10)

SILVICULTURE: The theory and practice of controlling the establishment, composition, structure and growth of forests in order to achieve specified management objectives. (2)

SITE PRODUCTIVITY (CAPABILITY): The mean annual increment in merchantable volume

which can be expected for a forest area, assuming it is fully stocked by one or more species best adapted to the site, at or near rotation age. (5)

SOCIAL BENEFIT (NET): The non monetary and not easily calculable returns to society arising from any form of economic activity. (10)

SPECIAL PLACES: A Government of Alberta initiative committed to the establishment of a network of Special Places that represent the environmental diversity of the province's six natural regions (20 subregions). The program encompasses a balanced approach to preservation, outdoor recreation, heritage appreciation, tourism and economic development. (7)

STAND: A community of trees, possessing sufficient uniformity in composition, age, arrangement or condition to be distinguishable from the forest or other growth on adjoining area, thus forming a silvicultural or management entity. (5)

STEWARDSHIP REPORT: A report that accounts for all activities, undertaken as steward of a given article, resource, area or process, related to strategies to achieve stated stewardship goals. Measures of performance are included and linked to plans that express the desired goals.

SUB-REGIONAL INTEGRATED RESOURCE PLANS: A system of Cabinet approved plans incorporating a cooperative and comprehensive approach to decision making relative to the allocation and use of crown land and resources. (6)

SUCCESSION: The replacement of one plant community by another in a progressive development toward climax vegetation. (4)

SUSTAINABLE FOREST MANAGEMENT (SFM): Management to maintain and enhance the long term health of forest ecosystems, while providing ecological, economic, social and cultural opportunities for the benefit of present and future generations. (11)

TIMBER MANAGEMENT REGULATION: The legislative statute that describes the mechanism and regulations by which the forested lands of Alberta are managed. (2)

TOLERANCE LIMITS: Acceptable degree of change which can be allowed before corrective action is taken.

UTILIZATION STANDARD: Standards establishing stand and tree merchantability. (2)

VOLUME TABLE: A table, graph or equation showing the estimated average tree or stand volume corresponding to selected values of other more easily measured tree or stand variables. (5)

YIELD CURVE: Graphical representation of a yield table. (5)

YIELD TABLE: A summary table showing, for stands (usually even aged) of one or more species on different sites, characteristics at different ages of the stand. (5)

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